16. Many current entrants are building their own networks that are similar to, but not identical to those of the ILECs. Others, such as AT&T, have sufficient access to capital markets to match the functionality of ILEC networks in most markets. Indeed, AT&T already has substantial local facilities in place to deliver its current interexchange services and its wireless services. With the purchase of TCI and acquisitions of, or agreements with, other cable television companies, AT&T can provide local telephony simply by upgrading the local cable networks without relying on ILEC network elements. The cable operators already pass virtually all households in their geographic areas; hence, AT&T needs only to extend coaxial drop lines from nearby telephone poles or underground conduits to reach the 35 to 40 percent of households not currently connected to cable television. AT&T has announced that it will build its own packet-switching capacity, thereby obviating the need for leasing switching capacity from ILECs. This packet-switched hybrid fiber-coax network will be quite different from the current ILEC networks; therefore, little or any of the incumbents' networks is necessary for AT&T to provide unimpaired local telecom services.

17. Similarly, commercial wireless networks are expanding rapidly in the wake of the allocation of the PCS spectrum through the Commission's auction process. According to the Cellular Telecommunications Industry Association, these wireless providers spent $14.5 billion on capital facilities in 1998.[7] This is nearly as much as the capital spending by all LECs reporting to the Commission in 1997 ($18.3 billion), the most recent year for which data are

[7] Cellular Telecommunications Association, Biannual Statistical Survey, 1998.

available.[8] The magnitude of this investment is important because it demonstrates that entrants into local telephony are able to muster enormous capital resources to deploy a technology that is somewhat different from that employed by ILECs in their wireline operations. To these wireless providers, the ILECs' loops and switches are not necessary, and their ability to provide competing service is not impaired by their inability to obtain them at regulated, TELRIC prices from the ILECs. Moreover, wireless providers companies now have facilities that they could lease to other local entrants as alternatives to the ILEC facilities.

18. Other new entrants, such as Nextlink, Winstar and Teligent, are deploying their own switches and new fixed wireless loop technologies, thereby obviating the necessity of leasing ILEC switches or loops or replicating them. AT&T has also announced that it will deploy a fixed wireless technology, called Project Angel. These new fixed wireless loops may prove to be a superior approach to delivering higher- bandwidth services.

19. Given the substantial investments being made by new entrants in new local access technologies, it is increasingly difficult to sustain an argument that aspiring entrants would be impaired in their ability to deliver service without access to the facilities deployed traditionally by ILECs to reach dispersed subscribers and deliver circuit-switched telephony. By building their own capital facilities that embody these new technologies or even by leasing facilities from others who are making such investments, CLECs are not dependent on ILECs' facilities. Nor are

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[8] Federal Communications Commission, Statistics of Communications Common Carriers, 1997-98.

these entrants necessarily persuaded that the ILECs' deployed technology is the best choice for delivering tomorrow's services.

20. Any attempt to require widespread unbundling of incumbents' networks at rates based on forward-looking economic cost may induce the more risk averse entrants to delay investments in different technologies, and this deadening of innovation incentives should be of critical concern to the Commission. CLECs may choose to defer investments in innovative new approaches to providing an unbundled element's services if they can simply obtain the element at TELRIC rates from ILECs. Moreover, if the Commission requires the provision of an entire UNE platform at TELRIC rates, CLECs may avoid investments in entire new technologies for delivering local service and simply pursue the less innovative and lower-risk strategy of simply leasing the entire UNE platform.

Entry into Local Markets Since 1996

21. In developing these new networks and services, the CLECs and other carriers are largely building their own switching capacity or adapting existing switching capacity to serve local customers. Enormous investments are occurring in transport facilities. Wireless companies have succeeded in distributing handsets to 60 million subscribers, thereby obviating the need to build loops. Local telecom entry is thus occurring without large scale reliance on the incumbents' facilities, a pattern found in most other competitive industries.

22. Indeed, local entry might have been more rapid had the Commission prescribed a far less extensive unbundling regime in its original Order in this matter. In the absence of a UNE platform requirement, entrants have already invested billions of dollars in their own facilities, but they may have delayed construction of other own facilities, hoping to obtain the entire platform of facilities at a price far below their incumbent rivals' embedded costs. Nevertheless, substantial entry is occurring through resale and the leasing of UNEs as the Commission's own survey of ILECs shows. Through June 30, 1998, the large ILECs reported that they had provided approximately 2.4 million of their lines for resale and another 244,000 UNE loops.[9] In Bell Atlantic's region alone, nearly 80,000 unbundled loops have been leased by CLECs.[10]These numbers had increased substantially over the first six months of 1998, rising by more than 50 percent. An analysis of CLEC activity by Merrill Lynch concludes that CLECs had about 4.5 million lines in service by the end of 1998.[11] From these data, one may therefore infer that at least 2 million CLEC lines were being provided through their own facilities without any reliance on ILEC loops or wholesale services. Given the CLECs' concentration on the more lucrative business customers, they accounted for about 5 percent of local revenues by the end of 1998.[12] More recent estimates developed by Bell Atlantic for this proceeding based on CLEC use of interconnection trunks suggest that CLECs now have between 2.5 million and 5.4 million

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[9] Federal Communications Commission, Common Carrier Bureau, Industry Analysis Division, Local Competition, December 1998.

[10] See UNE FACT Report, Appended to Bell Atlantic's Comments in this proceeding, Section III, Table 3

[11] Daniel Reingold and Mark Kastan, Telecom Services -- Local, MerrillLynch, March 11, 1999.

[12] Id., Table 8.

facilities-based lines in service.[13]

23. CLECs are also actively building transport facilities to interconnect their own switching centers. Merrill Lynch estimates that by the end of 1998, the major CLECs had nearly 54,000 route miles of network in service, more than half of which was owned by CLECs other than MFS and Teleport, who had begun to build their networks long before 1996.[14]

24. It is noteworthy that deregulation and liberalization in other industries has proceeded very rapidly without "unbundling" or other mandatory leasing requirements for incumbent firms' facilities even though the capital requirements for successful market have generally been substantial. In airlines and trucking, for example, large expenditures are required on terminal facilities, yet competitive entry occurred rapidly. New investment by market entrants led to substantial downward pressure on rates paid by passengers and shippers in the first few years after deregulation.[15] Similarly, railroad rates began to decline almost immediately after deregulation despite any requirement for essential-facilities "unbundling" of the incumbents' facilities. In each of these industries, entrants were quick to experiment with new network

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[13] See UNE Fact Report, Section III, Table 2. These estimates are based on data on provisioned trunks (for various dates between December 1998 April 1999) provided by the RBOCs and GTE.

[14] Id.

[15] This discussion and that which follows on other transportation industries draws heavily on Clifford Winston, "U.S. Industry Adjustment to Economic Deregulation," Journal of Economic Perspectives, Summer 1998, pp. 89-110, and Robert W. Crandall and Jerry Ellig, :Economic Deregulation and Customer Choice: Lessons for the Electricity Industry," Center for Market Processes, George Mason University, 1997.

designs and technologies for providing improved service. They did not simply lease their incumbent rivals' facilities to offer precisely the same services.

25. Moreover, there has been substantial entry into several previously concentrated unregulated industries in the past two decades in which entrants have committed billions of dollars in production facilities and distribution networks without any mandates on incumbents to lease their facilities. For example, Toyota has become a major U.S. automobile producer by investing billions of dollars in its own assembly facilities, parts distribution system, and dealer network without having to rely on incumbents' existing facilities. Toyota and other Japanese automobile companies developed their own parts supply from related and independent companies who provided a much more efficient "just-in-time" delivery system than the systems used by the U.S. Big Three.[16] Similarly, Nucor has become the largest U.S. steel company in terms of market capitalization by simply finding a new technology that avoids the excessive costs of blast furnaces and coke ovens owned by USX and Bethlehem.[17] Amazon.com has developed a strategy for distributing books by avoiding the necessity of building a large number of stores -- a retail distribution "network" -- to connect all of its customers. Yesterday's "necessary" facilities are thus being bypassed by innovative investments by new entrants that have successfully exploited new technologies. Billions of dollars have been invested in each of these industries by firms who do not have access to their rivals' facilities.

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[16] See James P. Womack, Daniel T. Jones, and Daniel Roos, The Machine that Changed the World. Rawson Associates, 1990.

[17] Robert W. Crandall and Donald Barnett, Up from the Ashes: The Rise of The Steel Minimill in the United States, The Brookings Institution, 1986.

The Availability of Network Elements from non-ILEC Sources

26. In making its decision to require that a given network element be unbundled by ILECs, the Commission must determine if each element is "necessary" and if the inability to obtain it from ILECs would "impair" entrants.[18] Clearly, such a decision must take into account the availability of similar facilities from other sources. In many geographical markets, such substitutes are now widely available, reflecting the fact that other carriers have invested in such facilities. Such investment, in itself, provides strong evidence that entrants do not have to rely on ILEC provision in these functionalities.

27. At a minimum, it would be a mistake for the Commission to require unbundling of network elements in the areas where they are now potentially available from sources other than the ILEC. Surely, it is unreasonable to expect multiple sources of telecommunications functionality in the least dense markets in the country. In these markets, competitive entry will probably be limited to wireline resale and facilities-based wireless services given the current low local monthly rates relative to cost. Therefore, even if incumbents are required to unbundle network elements and price them at forward-looking economic costs, they will not provide an attractive entry strategy in these low-density markets. However, there is no reason to pursue a uniform national unbundling requirement simply because entrants have not yet invested in their own networks in order to serve these rural markets. To do so would unnecessarily reduce investment incentives in the more urban markets.

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[18] 1996 Act, Section 251(c)3.

28. There is now ample evidence available to the Commission for it to judge the degree to which various ILEC elements are necessary to new entrants into local services. In this section, I review some of these data for switching, advanced services, inter-office transport, and loops. More details may be found in the UNE Fact Report attached to Bell Atlantic's Comments filed in this proceeding.

29. Switching. The Commission regularly surveys the degree to which CLECs with switches have obtained numbering codes for specific rate centers. The most recent number-assignment data collected by the Commission are now available through September 1998. However, the UNE Fact Report provides more recent data based on Bellcore's Local Exchange Routing Guide. Through March 1999, the Bellcore data show that at least one CLEC has NXX codes in more than one-third of all large ILEC rate centers and in 59 percent of Bell Atlantic centers. Because collocation occurs more frequently in the largest rate centers, the share of access lines that are now being served by CLEC switches is far greater than one-third.In the largest MSAs. For example, in the MSAs in Bell Atlantic's region, the percentage of rate centers served by at least one CLEC is 99 percent for Boston, 78 percent for New York, 50 percent for Washington (DC), 88 percent for Baltimore, and 81 percent for Philadelphia[19]. Thus, it would appear that in most urbanized areas, CLECs are already utilizing their own switches or other non-ILEC switches and that ILEC switching is not a necessary element for entry.

30. There are even more alternatives for switching services than the CLEC switches that

[19] UNE Fact Report, Section I, Table 2.

are rapidly being deployed -- particularly in urban areas. The IXCs have Class 4 switches deployed to handle their long-distance traffic, and these switches can easily be modified to handle incremental local traffic. For example, AT&T is utilizing its own switches in this fashion until it installs packet switches in its fiber-coax local network that it is building in its acquired cable television systems. In addition, there are now more than three thousand of wireless switches in use throughout the country, nearly 2500 of which are owned by carriers other than the large ILECs. Many of these switches are indistinguishable from ILEC end-office switches and could easily be used by CLECs. Finally, CLECs are now able to deploy switches extremely rapidly -- often in less than two months -- and at rapidly-declining prices.

31. Local transport. The rapid growth in fiber deployment by CLECs is overwhelming evidence of the competitive nature of the market for local transport and the ability of CLECs to obtain local transport -- through their own facilities -- without having to rely on ILEC services. Numerous non-ILEC companies, such as GST Telecommunications, IXC Communications, Metromedia Fiber Network, and Williams Communications -- are building very large fiber networks and leasing services on them to the CLECs for local transport.[20] Other companies -- such as NEXTLINK, WinStar, and Teligent -- are using wireless technologies for local transport to provide high-capacity connections. The large interexechange carriers, such as AT&T and MCI-WorldCom, are also investing in wireless technologies and acquiring MMDS and 38 GHz licenses to provide local transport.

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[20] The details of these networks and the CLEC lessees may be found in the UNE Fact Report appended to Bell Atlantic's Comments..

32. There is substantial evidence that CLECs are providing their own local transport or obtaining it from third parties at present. CLECs have established collocation arrangements at more than 359 wire centers in Bell Atlantic's territory. Moreover, there are CLEC collocation arrangements in 75 percent of the largest wire centers, those with 40,000 access lines or more. In many of these centers, there are multiple CLECs with collocation. For example, in Bell Atlantic's territory, there are 302 wire centers with 40,000 lines or more, and 189 have at least one CLEC collocated in it. In 135 of these wire centers there at least two CLECs with collocation; in 89 of these centers there at least three CLECs with collocation; and in 53 there are at least 4 CLECs with collocation.[21] This rapid development of collocation, particularly in the dense markets, could not occur unless the CLECs could transport this traffic to their own local switches. This transport is occurring over a large number of rapidly-expanding fiber networks and wireless facilities now available to CLECs. They simply do not need unbundled local transport from ILECs to offer competitive services. They may simply lease the service from a competitive industry, build their own fiber facilities, or even use wireless facilities to interconnect their collocation facilities and switches.

33. Finally, there is ample evidence from the commercial mobile wireless services (CMRS) market that unbundled ILEC local transport is not a source of impairment for the development of local telecommunications facilities. Since the completion of the PCS auctions, CMRS providers have moved aggressively to complete their networks and, in many cases, to develop large, national footprints. As mentioned above, these companies are spending nearly as

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[21] UNE Fact Report.

much as the ILECs on capital facilities throughout the country -- in dense markets and in less-dense markets. I am unaware that these companies have encountered any difficulty in obtaining local transport among their facilities -- transport that is obviously crucial to the operation of their networks. Undoubtedly, these carriers are using the same options as the CLECs referenced above -- leasing capacity from competitive fiber networks or building their own fiber or wireless facilities. Their ability to do so without TELRIC-priced access to ILEC unbundled facilities underscores the fact that unbundled ILEC local transport facilities are not necessary for local entry.

34. Loops. The development of urban fiber-optic facilities to serve medium and large business customers in major business corridors antedates the 1996 Telecommunications Act. Since 1996, this investment has continued. The CLECs have deployed over 20,000 miles of fiber in the top 30 MSAs. Indeed, there is CLEC fiber in virtually all of the 150 largest MSAs in the country, and CLEC fiber now serves almost 15 percent of all commercial office buildings in the country.[22] These competitive fiber facilities are undoubtedly capable of serving an even larger share of the business market, and ongoing CLEC investment in fiber will expand this share over time. Therefore, a large and expanding share of the local business market can now be served by one or more CLECs from their own facilities.

35. Residential subscribers are often beyond the reach of fiber-based CLECs, but approximately 95 percent of households are passed by a cable television system. Recent

[22] UNE Fact Report.

acquisitions of cable systems by AT&T and their joint operating agreements with other cable MSOs has created a vast new facilities-based source of local competition designed to provide telephony, video, and broadband services through the cable networks. AT&T is now spending billions of dollars to upgrade these cable facilities. Once completed, these systems will not require unbundled ILEC loops (or other facilities, for that matter) to reach even dispersed residential subscribers.

36. Finally, the rapid development of CMRS services since the PCS auctions has led to national pricing plans at sharply-declining rates. For many residential subscribers, the wireless handset may already be a most attractive substitute for wireline service and thereby obviate the need for a copper (coaxial-cable) loop to his or her home. Indeed, AT&T is already offering its mobile wireless service as a substitute for wireline service in a trial in Plano, TX. The average PCS subscriber now uses 250 to 350 minutes of service per month. This usage has been stimulated greatly by the new, low-price national rate plans that allow the subscriber to call from any location in the country to any other location at the same low rate. As PCS rates continue to fall, CMRS will surely loom as an even more attractive substitute for wireline loops, particularly for households whose calling patterns include substantial amounts of long-distance calls and limited local calls. Two major CMRS providers, Western Wireless and Air Touch, predict that by 2001 approximately 10 percent of their subscribers will use their wireless handset as their primary telephone.[23]

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[23] UNE Fact Report, Section III.

37. Today, most medium and large business subscribers have a choice of facilities-based competitive suppliers of local service. In addition, the rapid evolution of fiber, wireless and cable-television technologies to deliver a variety of services through facilities that do not require any ILEC facilities provides the Commission with ample evidence that local loops may not be necessary for competitors to enter even the local residential markets. Thus, if the Commission designates loops as unbundled elements, it surely should do so for only those markets that are not now served by competitive access technologies and only for a limited period of time.

38. Advanced Services. Telecommunications carriers are now beginning to address the growing demand for advanced, high-speed services created in large part by the Internet. Telephone carriers have begun deploy a variety of Digital Subscriber Loop (DSL) technologies that would allow them to deliver services over existing copper-wire loops at speeds of 1.5 Mbs or more. However, such deployment requires large capital expenditures that may not be recovered in the rapidly-changing market for high-speed services. These new facilities are not part of the embedded base of facilities that ILECs now use to offer traditional voice services, but are being deployed simultaneously by ILECs and CLECs alike.

39. Already there are at least three technologies that are competing with telecom carriers' DSL services: cable modems, direct satellite broadcast services, and fixed wireless services, including MMDS and LMDS. MCI and AT&T have been actively purchasing MMDS operators in order to offer data services, and AT&T has been an aggressive acquirer of cable franchises in order to offer a bundle of services, including high-speed Internet access. Many of these new

technologies are in their infancy, but each could prove to be a very vigorous competitor for the telecommunications carriers' DSL services. Most large cable television companies are now modifying their local systems so as to be able to deliver telephony and high-speed services. Cable modems are already available on scores of U.S. cable systems. In addition, DirecTV offers a high-speed service, DirectPC, and new satellite services are being developed for the Ka band and through a number of low-orbiting systems, such as Teledesic. Finally, LMDS is now being developed as a technology for delivering high-speed services to dispersed residential and business subscribers.

40. Currently, it appears that cable systems have an early lead over ILECs in deploying facilities to deliver the new high-speed services. If the ILECs are to be able to provide a competitive alternative to these cable systems' broadband access services, they must have the incentive to deploy facilities without the fear that, if they are successful, they will be forced to offer these facilities to their rivals at TELRIC prices. In the current highly-uncertain environment, it would be a mistake for the Commission to require the unbundling of network elements that are deployed to deliver DSL services. Competitive DSL suppliers are thriving using their own network equipment (DSLAMs), designing and installing their own terminal equipment in customers' facilities, and often leasing just the ILEC loop. There is no need to require further unbundling to promote competition. Indeed, new unbundling requirements for the ILEC facilities installed to deliver DSL services is likely to inhibit such investments and to slow DSL growth accordingly.

I hereby declare, under penalty of perjury, that the foregoing is true and correct to the best of my knowledge and belief.

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